



National Aeronautics and Space Administration  
Goddard Space Flight Center

Wallops Flight Facility, Wallops Island, Virginia

# Inside Wallops

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## NASA "Fireworks" Display Set for East Coast in July

NASA will conduct its own version of Independence Day "fireworks" during a series of sounding rocket nighttime launches July 2 through 20, 1999. The experiments are designed to study "space weather" and focus on understanding naturally occurring layers of metal ions in space.

Each mission will consist of a one-stage Black Brant V and a two-stage Taurus-Orion sounding rocket. The Black Brant V, which will carry instruments only, will be launched first. The Taurus-Orion, carrying the chemical package, will be launched approximately three minutes later.



Trimethylaluminum release over Poker Flat Research Range, Alaska.

The specific aim of these experiments is to explore metallic ion layers that exist in the Earth's lower ionosphere (at about 60 miles altitude or 100 kilometers) and to understand how their interactions with wind in the upper atmosphere create large electric fields and turbulence. The metallic ion layers are formed by material from meteors that impact the Earth's upper atmosphere.

While the Earth's space envelope may appear to be empty and very quiet, it actually consists of a diffuse "upper atmosphere" that is bustling with activity. Space weather refers to the complex interactions of the Solar wind (the fastest moving stream of particles emanating from the Sun), the Sun's magnetic field, and Earth's magnetic field

and atmosphere. When these forces come together, disturbances may occur in Earth's ionosphere, the volume of space just above Earth's lower atmosphere.

These disruptions can affect radio, television and satellite communications. By better understanding these interactions in the ionosphere, scientist hope to gain information that will ultimately help improve the reliability of radio and satellite communications.

The status of the launches can be found by calling the Wallops Flight Facility launch status line at (757) 824-2050 or on the Wallops web page at: <http://www.wff.nasa.gov>

During the two-week period, four suborbital rockets will be launched on two separate nights between 9:30 p.m. and 4 a.m. from the NASA Goddard Space Flight Center's Wallops Flight Facility, Wallops Island, Va.

Two of the experiment packages will release a chemical that will form large glowing clouds in space. These luminescent milky-white clouds should be visible with the naked eye for several hundred miles from the launch site, which encompasses the mid-Atlantic and portions of the northeastern and southeastern United States.

The clouds should be visible for 10 to 20 minutes to the southeast of the launch site at about 70 degrees elevation.

The chemical, trimethylaluminum, will be released in the ionosphere between 43 and 96 miles altitude. The harmless by-products disperse for thousands of miles as they diffuse into the upper atmosphere.

## Wallops Shorts.....

### Fire Department

Wallops Emergency Medical Technicians (EMT) responded to an emergency medical mutual aid request on Saxis Road on June 19. One patient was transported to Shore Memorial Hospital.

On June 20, Wallops EMTs responded to two motor vehicle accidents. Two patients involved in an accident at T's Corner were transported to Peninsula Regional Medical Center. EMTs also provided medical assistance at the scene of another motor vehicle accident in Oak Hall. Both mutual aid requests were placed by Accomack County 911.

### Payload Team Travels

A NASA Wallops payload team is in Norway to support the launch of two NASA sounding rockets from Andoya Rocket Range.

### Sounding Rocket Launch

A Terrier-Black Brant sounding rocket was successfully launched from the White Sands Missile Range, N.M. on June 24. The solar physics experiment was to investigate the physical properties of the solar corona. Dr. Joseph Davila, NASA Goddard Space Flight Center was the principal investigator. The payload was recovered.

## Design Errors Caused WIRE Spacecraft Failure

NASA's Wide-Field Infrared Explorer (WIRE) failed because of an incorrectly designed electronics box that prematurely fired explosive devices, causing early ejection of the instrument's telescope cover.

The WIRE Mishap Investigation Board found that the design of the instrument's electronics box did not take into account subtle, but known, start-up characteristics of one component within the box. Electrical power created at the start-up of this component reached pyrotechnics meant to eject the telescope's cover later in the mission. The power reached the pyrotechnics within a fraction of a second after the box was turned on, and the cover was ejected.

Frozen hydrogen used to cool the telescope's sensitive infrared detectors was exposed to the Sun. As the telescope warmed, the hydrogen converted into a gas and vented entirely into space within 48 hours of launch. Without the frozen hydrogen, the instrument could not conduct its scientific mission.



Space Academy Slots Still Open

Slots are still available for students ages 14 - 16 at the Virginia Space Flight Academy at Wallops, August 1 - 6.

The sessions for students ages 12 - 14, which are scheduled for July 18 - 23 and July 25 - 30, are filled.

The Advanced Academy is a week-long residential program centered around space flight. During the week students conduct hands-on programs associated with the Hubble Space Telescope, a space station, and rocketry. There may even be an opportunity for students to witness a sounding rocket launch.

The Space Flight Academy is sponsored by the Virginia Space Flight Center and Old Dominion University and is supported by the Eastern Shore of Virginia Regional Partnership, NASA Wallops Flight Facility and AEGIS Combat Systems Center. For further information on the Academy, the web site is: <http://www.odu.edu/~ccee> Applications are available in the Public Affairs Office, Rm. 108, Bldg. F-6.

Thanks!

Wallops Savings Bond Campaign Chairperson, Bonnie Carroll, said a few more employees have signed on to the Savings Bond Campaign while others have opted to increase their allotment. She would like to thank those who helped with this year's campaign as well as the new enrollees.

**Lost.** A "Mother's" ring, 14 carat gold with four small gemstones. Gold is twisted to form four circles that cradle the gemstones. The ring was a gift from my children ... very, very special to me. If found, please call Jan: 824-6178 or e-mail: [JPDJACKSON@aol.com](mailto:JPDJACKSON@aol.com) Reward.

EAP Monthly Workshop

Employee Assistance Program (EAP) monthly discussion workshop will be presented by Dr. Chris Garner, an EAP affiliate counselor.

The topic will be "Helping Children Cope with Change". The workshop will cover issues such as how to deal with grief and loss, separation and divorce, and entering new environments. Information also will be available on distinguishing between typical "growing pains" and more serious concerns such as depression.

The group format is informal. The EAP invites everyone to participate either by sharing experiences or by just coming and listening. The workshop will begin at 9 a.m. on July 7 in Building F-160, Room 157 and last for approximately one hour. Seating is limited. Call the EAP at x66-4600 to reserve a seat.

The next issue of Inside Wallops will be July 12.



On July 4, 1776, we claimed our independence from England and Democracy was born.

Every day thousands leave their homeland to come to the "land of the free and the home of the brave" to begin their American Dream. The United States is truly a diverse nation made up of dynamic people.

Each year on July 4, Americans celebrate that freedom and independence with barbecues, picnics, and family gatherings.

Have a safe and enjoyable Independence Day Celebration.



Wallops Firefighters Receive Unique Training

The Wallops Fire Department has been busy this past week dealing with almost every type of aircraft emergency that could come their way. They've had to extinguish cabin and engine fires and fuel spills that have erupted in flames.

Perhaps this sounds like a script to a movie. Actually, the firefighters were being trained in fighting aircraft fires. Where is the best place to train airport firefighters? At their own airport, of course. However, the ability to provide adequate on-site training without the benefit of a suitable airplane to simulate "real-life" situations is difficult because of environmental and cost concerns. Wallops looked to the Commonwealth of Virginia, Department of Fire Programs (DFP) for the answer.

Wallops firefighters received training on Virginia DFP's Mobile Aircraft Rescue Fire Fighting Trainer. The transportable unit looks like a small corporate jet with only one wing. The unit includes realistic mockups of an ejection seat, landing gear, cockpit, flight data recorders, working fire "t" handles, aircraft batteries, pressurized cylinders and front and rear exit doors.

"Training is very important to keep skills sharp because actual aircraft fires are rare," said Joe Conaty, Wallops Fire

Chief. "This is the closest to being the real thing, I hope we'll ever see".

It has a fully integrated computer-controlled system that safely simulates realistic aircraft fire scenarios. The system allows for multiple training scenarios including a main cabin fire, an engine fire, fuel spill fire and a wheel/break fire. To insure realism, the unit also generates smoke in the baggage compartment, cockpit and battery compartment. To allow for munitions training, a mock-up of a "Sidewinder" missile is included.

The trainer is controlled by computer commands and can be programmed to repeat training scenarios as needed. The system uses propane gas as a fuel for the fire simulations and includes many safety features such as gas and temperature monitoring in the unlikely event of a component failure. The trainer has an emergency shutdown system in the event of a problem during a simulation.

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